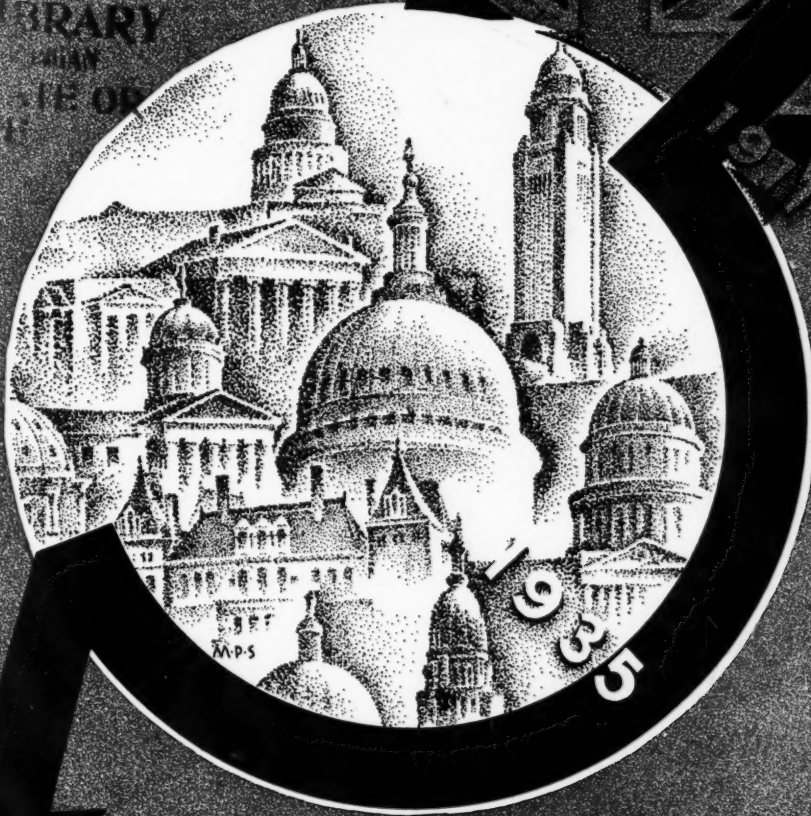


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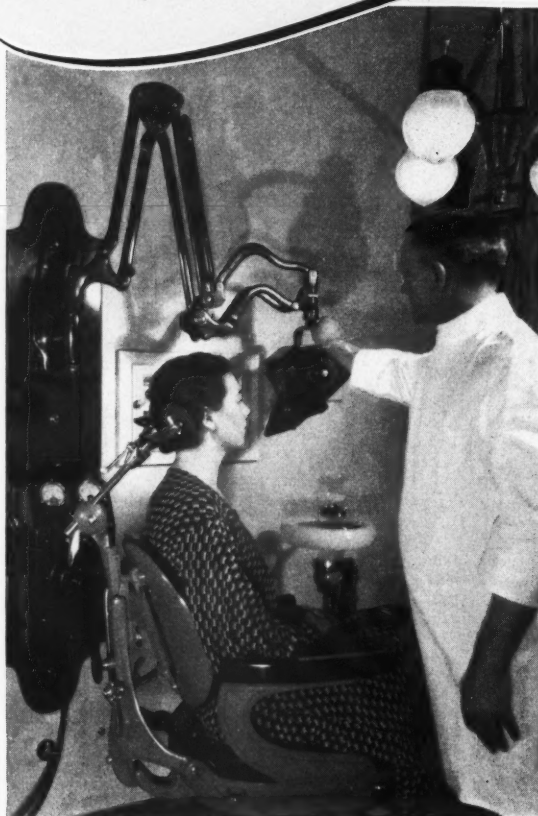


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## PROSTHETIC METHOD OF AN EDENTULOUS DENTIST

L. A. HAWKES, D.D.S.

Pittsburgh

**I**T hardly seems essential to outline the steps for snap impression and primary models as the insufficient open mouth methods are universally understood and used, but they must be mentioned.

1. A compound upper impression is taken and a cast poured immediately with quick-setting plaster. A lower impression is likewise taken and a cast poured at once. While the plaster is setting, a mush bite impression is taken with wax, then removed from the mouth, and the excess trimmed away. This impression is returned to the mouth to obtain the median line and lip registrations. The plaster should be hard enough to separate the models. The models are placed in the mush bite, and mounted on any articulator that has lateral mandible movements (Fig. 1).

2. Base plates are prepared on each model after proper trimming to prevent interference with any tissue attachments. With softened base-plate wax, rolls are formed the size of the thumb, each roll being sealed to a base plate. A templet is inserted between the rolls, and the articulator is closed (Fig. 2). Registration marks on the mush bite, having been transferred to articulated models, serve as a guide in closing to proper distance.

3. Fig. 3 shows the case after removal of the templet and as it will appear in the patient's mouth. Necessary corrections should follow. If either ridge form is too short, it may be lengthened by adding layers of base-plate wax; if too long, it may be cut away. The wax is softened over a flame, and the case is returned to the mouth. The opposite harder ridge form will force adaptation easily, or the models can be returned to the articulator and the templet used. The median line should be verified at this time.

4. Masticating occlusion, the vital step, follows. This supplants any other method for accuracy: it is final. Place the hands, as in Fig. 4, on each side of the patient's head, asking her to keep the base plates in occlusion, while she pinches and releases alternately several times. Muscular con-

traction will be felt beneath the fingers. The place where the greatest action is detected indicates the location of the patient's greatest masticating power, the point that Nature has developed: No other location will equal its efficiency. Try to locate that greatest muscular contraction on your own head; move the mandible in any direction, even the smallest fraction of an inch, and you will find that the muscular action is decreased. To give the patient the greatest comfort and service, dentures have to meet the requirement of muscular contraction regardless of any existing theory to the contrary.

5. The base plates are removed from the mouth; V-shaped grooves one-fourth inch deep are cut, five on the upper and four on the lower, so arranged that they do not oppose, but are staggered as in Figs. 5, 6, and 7.

6. The base plates are returned to the mouth, and again the patient is asked to show the temporal test. It is important that the patient know just what the operator wishes done in the next step before it is attempted.

7. A sheet of base-plate wax is heated until soft; it is folded to double thickness; trimmed to fit the case; resoftened in the flame and inserted between the plates (Fig. 8). The patient is again asked to show the point of masticating occlusion, while the operator places his hands properly to verify muscular contraction with the same force indicated previously. If the force seems in any degree weaker, it indicates that the occlusion is not correct. Another attempt with a fresh preparation of the bite wax is necessary. The same one should not be used twice; it will tend to lead the mandible into another false occlusion.

8. When the operator is satisfied that masticating occlusion has been established, the bite wax is removed, which will appear as in Fig. 9, when it is held up to the light. The five grooves on the upper and the four on the lower (Figs. 6 and 7) make it impossible to return it to the case in any but the proper position. It will be noticed that this final bite has been

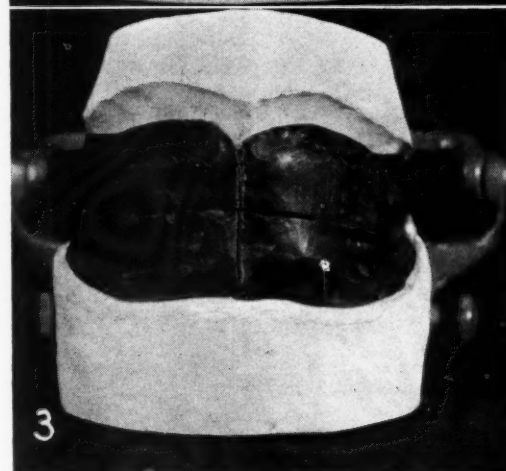
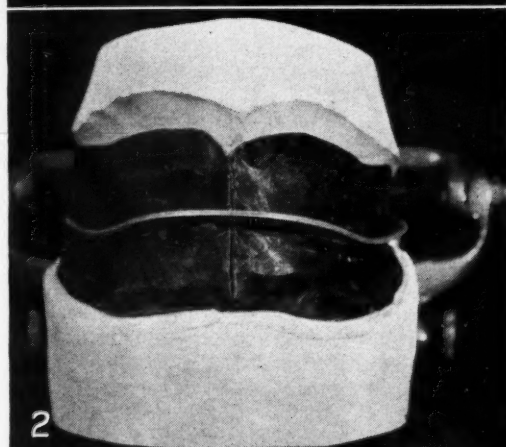
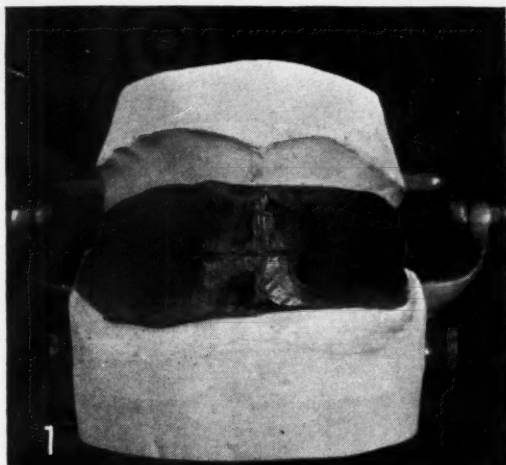
taken with masticating occlusion, the tissues being compressed in the same manner as when the finished case is in use—obviously, an efficient method.

9. The next step is one of equal importance. The case is returned to the articulator and the base plates are placed together on the bite wax on the lower model (Fig. 10). The upper model is separated from the articulator; the upper model is properly located, and the case is remounted with plaster. This will give a mounting of the case according to the bite taken under masticating stress and tissue compression, as when the finished case is in actual use. After the right registrations of lip length and median line have been made, the case is ready for the taking of a final impression with the closed mouth, under masticating pressure, and with the same displacement of tissues that takes place when the patient uses the case.

10. Both base plates should be removed from the mouth and chilled in cold water to harden the wax sufficiently to withstand masticating pressure while the final impression is being taken. The lower impression should be treated first, for all pressure applied can force the impression material in only one direction, while with the upper there is a difference. With the upper, if care is not used, the thickness of the impression material in the labial region will tend to force the base plate forward, giving a false representation. The mixture must be thin enough to permit the base plate to be forced back into proper place, and with the lower already accomplished, it proves a positive guide, upon closure, against any uncertainty as to the correctness of the position of the upper base plate.

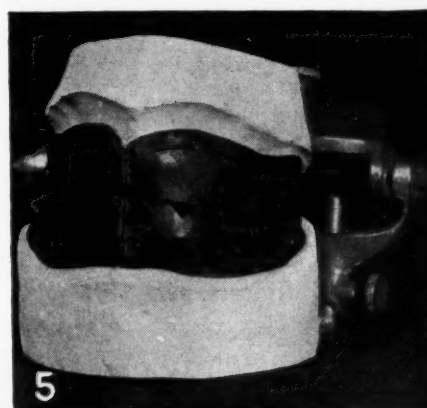
Before one attempts to take the impression, the patient must thoroughly understand what is expected regarding muscular movements and that the purpose is to register every tissue movement, particularly of the tongue. The patient should be responsible for obtaining perfect registrations in the impression, otherwise discomfort will result.





reason is involved: the operator is training the patient to find the vital point of closure in the last stage, which is important. As the material begins to set in the lower, instruct the patient to use all movements to extremes, not only to purse the lips but to move the tongue about the mouth in all directions, particularly across the posterior area of the upper, and to use masticating pressure frequently, just as will be done with the finished case.

When the Truplastic has set, remove the upper base plate and again chill in cold water, of course, leaving the lower in the mouth. Truplastic is applied to the upper and inserted in the mouth, great care being used to get the case back into proper position. I have found that a vibrating movement of the hand is valuable in forcing the base plate into the desired position. As the lower is brought into occlusion, the correctness of position can easily be determined, and the lower being permanently situated, it is definitely reliable as a guide; it is for



Remove base plates from the mouth; chill in cold water to stiffen wax against danger of distortion. Insert the upper in the mouth. Prepare Truplastic in a mixture of the consistency of thick cream; apply to the lower and insert in the mouth; have patient close, while the operator again places his hands over the temples to verify muscular contraction. While it may seem unnecessary to repeat this temple test so often, a psychologic

this purpose that the lower should be taken first. Again the patient is instructed to produce all muscular movements to extremes and use masticating pressure frequently until the Truplastic is thoroughly set. The final bite may now be obtained. Another double thickness of base-plate wax is prepared as before. The last bite impression is taken under masticating pressure, with soft wax, and the case is ready for removal.

11. Remove the lower base plate first; that will make the upper more accessible. With the thumb and second finger placed well back on the tuberosity region, remove the upper. If breakage occurs, it must be corrected. Sometimes a portion of soft counter wax found at the tooth counter of the depot can be used to reproduce any slight imperfection. Any area that does not show that tissues have turned back excess is not perfect and must be improved. This method gives a closed mouth impression, under the same masticating stress and with tissue displacement similar to that occurring when the finished case is in use.

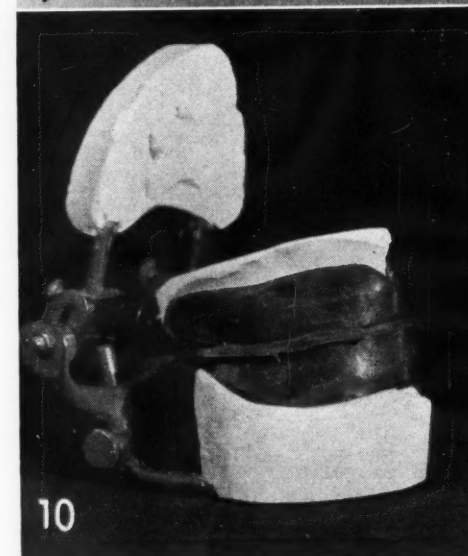
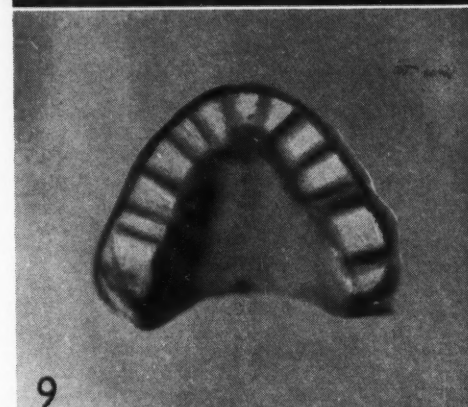
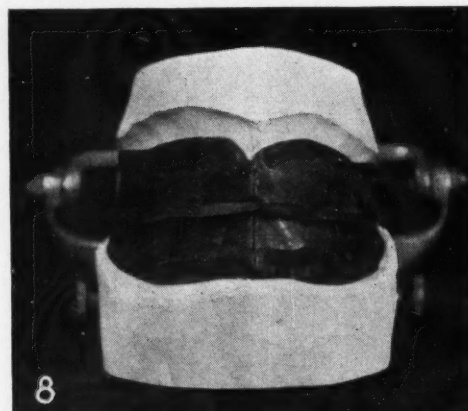
12. With any material desired for final master models, casts are poured or sent to the laboratory.

13. Remounted on another articulator the impression will appear as in Fig. 8, ready for the application of the teeth.

The time required for these steps varies from an hour to an hour and a half under ideal conditions. While the procedure may seem to be a tedious one, it will be found that the results justify the time required, for the patient will have dentures that meet acknowledged requirements of greatest comfort and service. Following the use of this procedure, I have found that later adjustments are rarely necessary—less frequently than after any other method I have used.

Many unnecessary items for the practice of prosthetics are advocated. Although they are used successfully by a few, they are complicated and discouraging to many. If extra-oral and intra-oral registrations, milling, complicated impression taking, and similar practices were eliminated, it seems to me that more practitioners would welcome the edentulous patient, feeling that, with this simplified technique, results inferior to none would be produced. My method is not a theory, advocated by someone who has had no experience with it: I have tested it personally and in my own practice.

128 Oakland Avenue.



Editor's Note: Numerous replies to the questionnaire on Organizing Edentulous Dentists, prepared by Doctor Hawkes<sup>1</sup> and published in ORAL HYGIENE, brought out the fact that there is wide variation in the technique used by dentists in the construction of dentures. The answers to the questionnaire also indicated general approval of an organization of edentulous dentists: an association of men who from direct and intimate experience are well prepared to determine what is of practical value.

To stimulate interest in the development of such an organization, Doctor Hawkes suggests that edentulous dentists discuss the matter with their colleagues at meetings of their local societies. Readers of THE DENTAL DIGEST who are interested in this subject are requested to write for information to Doctor L. A. Hawkes, 128 Oakland Avenue, Pittsburgh, Pennsylvania.

<sup>1</sup> Hawkes, L. A.: Organizing Edentulous Dentists, ORAL HYGIENE, 24:552 (April) 1934.

## A SIMPLE OCCLUSAL INLAY TECHNIQUE

BENJAMIN KROHN, D.D.S.

Chicago

**D**ENTISTS often have occasion to insert a simple occlusal inlay, and in the conventional manner make their cavity preparation, take a wax pattern, and cast the inlay. Upon trying the casting in the mouth, they find that it does not fit well. This is often the result of distortion in removing the wax pattern. If the casting does fit well, the operator burnishes the margins of the inlay in the mouth, and provided the margins are good, he may find it almost impossible to remove the inlay without inserting an instrument under a portion of the margin, thus spoiling the inlay.

### TECHNIQUE

A simple technique for simple occlusal inlays is given here which will definitely eliminate the hazards mentioned and will produce uniformly accurate inlays.

**Cavity Preparation**—The cavity is prepared in the approved manner, following out the grooves and extending the margins of the cavity to areas of immunity. Care should be taken to make the walls parallel, if possible, or with a slight degree of divergence toward the occlusal. This eliminates all undercuts, and thus aids in the removal of the wax pattern and gives greater retention form to the cavity. The cavo-surface angle of the cavity is beveled to remove all unsupported enamel rods and the cavity is irrigated with warm solution to remove the dust and debris. The cavity preparation is now complete and the operator is ready to take a wax impression.

**Wax Impression**—A piece of inlay wax is now softened in the open Bunsen flame. The wax is carried to the cavity preparation and with a suitable wax plugger is packed down into the angles to give an accurate impression of the preparation. The instrument is heated and the wax softened in the cavity. The patient is then instructed to close and move the jaws in the functional movements of mastication. The pattern is then carved to occlusion with wax carvers.

The wax pattern can be polished and the margins burnished by wrapping a small piece of cotton around the ends of cotton pliers; dipping in water and holding in the flame until warm; wringing out the excess mois-

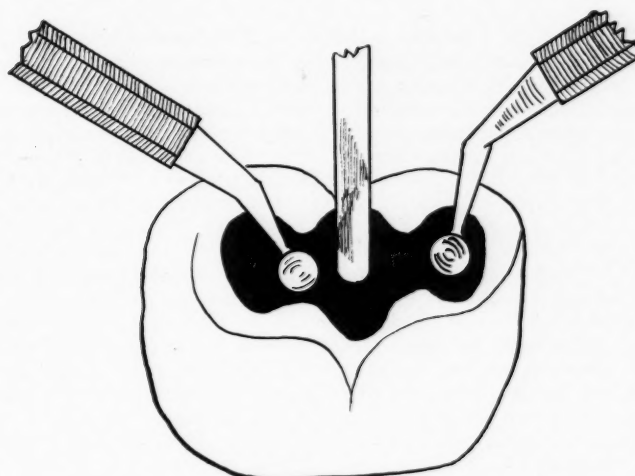
ture, and rubbing it from the wax to the tooth structure over the margins. The pattern may then be chilled with a few drops of cold water.

**Spruing**—A small wire sprue about one-half inch long, which may be obtained by cutting a piece from an ordinary wire paper clip is next grasped by means of the cotton pliers, and after it is passed through the Bunsen flame to warm, it is placed in the center of the wax pattern and allowed to sink to the floor of the cavity. The reason for specifying a sprue former made of a paper clip (serrated type preferred) or common pin is that it is of a small diameter, so that after casting is done there will be room enough to burnish the margins of the inlay with a small stone. If the sprue were larger this could not be very well done. Also a paper clip or pin is always conveniently at hand.

Hold the sprue carefully for a few seconds until the wax has hardened.

The patient is instructed to keep the mouth open, and the cotton pliers are removed, the wax pattern and sprue former being left in the cavity. Now the pattern may be chilled with a little cold water and removed by grasping the sprue with the cotton pliers and lifting occlusally.

**Burnishing**—Return the pattern to the cavity. With a small wax burnishing instrument in each hand, place



Wax pattern in cavity with paper clip sprue attached, showing position of wax burnishing instruments in adapting the wax margins.

one instrument at the distal portion of the wax pattern to hold it firmly but gently in the cavity while using the other to reburnish the margins. Hold the pattern down with the burnisher at the mesial portion and reburnish the distal, buccal, and lingual margins (see accompanying illustration).

The pattern is again chilled with the cool water and removed by grasping the sprue former with the cotton pliers. If it seems to come away from the cavity without binding, it may be placed on the crucible former, invested, burned out, and cast; if the pattern binds, it is replaced in the cavity, and the burnishing is repeated.

After the inlay has been cast, about one-eighth inch of the sprue is allowed to remain attached to the inlay when the button of excess gold is cut off.

**Finishing**—At the next appointment the inlay is grasped by the central gold post and placed in the cavity by means of the cotton pliers. If the technique of taking the wax pattern has been strictly adhered to, the inlay will go to place without difficulty. The gold margins of the inlay may now be burnished to a fine and accurate finish by the use of small mounted carborundum stones in the handpiece, care being taken always to

(Continued on page 87)



# CONSTRUCTION OF PORCELAIN INLAYS WITHOUT A PLATINUM MATRIX

ROBERT K. GEORGE, D.D.S.

Indianapolis

WHEN one considers the esthetic results that may be obtained with porcelain inlays, it is difficult to understand why the public demand for this type of restoration has been so long delayed. Doubtless the past difficulties in fusing temperature, manipulating the matrix, matching shades, and staining margins, as well as the difficulty caused by friability of materials and unsuitable cement have discouraged most dentists from recommending this admirable type of restoration. Happily these factors are things of the past and the dentist of today may easily master every detail of cavity preparation, impression taking, model pouring, baking, final finishing, and cementing. The whole procedure has been simplified, and a satisfactory end-result assured through the discovery of an investment material that does away with the need for the platinum matrix. Porcelains are now standardized as to shade and fusing point. Cementing can be accomplished perfectly. The outlay for equipment is moderate and the technique can be simply and rapidly done.

## SPECIAL INVESTMENT MATERIAL

The material used for making all models from impressions and patterns

is called Idepor. Since the success of the technique depends entirely on this material, a little history is in order. Ceramists have for a long time sought to eliminate the platinum matrix. The platinum matrix has many disadvantages: (1) difficulty in burnishing without wrinkling or tearing; (2) it does not aid in the control of shrinkage; (3) it necessitates the use of a seam in porcelain jackets; (4) it gives the unavoidable cement line; (5) it tends to overfuse porcelain directly in contact with it because of the rapid conduction of heat, and (6) porcelain draws away from platinum during application of heat.

Eugene Brill described the method of baking porcelain directly in an investment material without the use of a matrix. He originally coated the mold with a thin film of colloidal platinum which was reduced to metallic platinum by heating in a furnace. This step was recently simplified by Doctor Brill so that the platinum is incorporated in the investment, thus making a second application of colloidal platinum unnecessary. The European name of this material is Brillat and in America it is called Idepor. This new and ideal investment compound represents, in my opinion, a distinct contribution to

the field of dental ceramics, possibly the most valuable since the advent of the pyrometer electric furnaces.

## MAKING OF MODEL

1. Idepor takes the form of a fine, gray, crystalline investment and is handled in a manner similar to plaster of Paris. Its initial setting time is three minutes; the final, fifteen or twenty minutes.

2. The investment material is mixed with water to a creamy consistency; only one impression or pattern should be poured at a time. Compound impressions are first wrapped in wax, then carefully filled with the Idepor.

3. The finer details are best painted with a fine camel's hair brush and then vibrated with a serrated instrument until filled.

4. The investment is then allowed to set for fifteen or twenty minutes.

5. In the case of the compound, the model is heated over a flame and carefully separated; any small particles of compound remaining are removed by soaking the entire model in alcohol and wiping with a soft brush.

6. The models made from wax patterns are also heated, the bulk of the wax being picked out with an in-

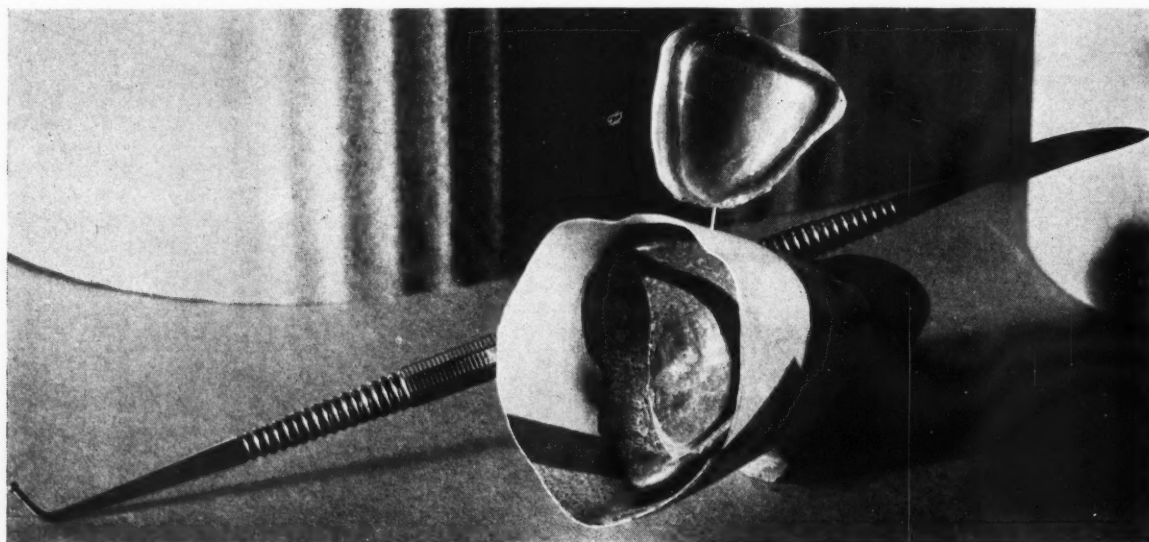


Fig. 1—A wax and compound impression ready for pouring in Idepor. A serrated handled spatula is used to place the investment material and vibrate to place.

strument. The remainder will carbonize in the furnace.

7. Models made from wax patterns must be trimmed with a sharp knife exactly to the margin; the line established by the fine excess of wax, which was allowed to remain while carving the pattern, is used.

8. The Idepor models are then placed in the furnace and fired to approximately 100 degrees above the fusing point of the porcelain to be used. In no case should the investment material be carried above 2250° F., as at this point it starts to fuse (Fig. 1).

9. The jacket crown models must be reinforced by the addition of corundum cone, a material highly resistant to heat. The copper impression is filled almost to the top and the cone is settled down into the impression; allowed to harden; separated with dry heat, and then articulated and mounted in the regular fashion.

10. The selection of porcelain is left entirely to the operator's judgment. S. S. White low medium, Justi medium, Apco 1875°, Twentieth Century medium may be used. It must be remembered that fusing points of porcelain are only relative; that porcelain is actually fused by *time plus heat*; for instance, a 2200° F. porcelain may be completely fused at 1600° F. if held at this point for twenty or thirty minutes. The purpose of fusing any porcelain is to impart to it translucency, homogeneity, and strength. Porcelain bodies possess the best characteristics that are time baked; that is, baked longer at lower temperatures and never bringing them quite to their maximum fusing point.

Apco porcelain with a fusing point of 1875° may be handled as follows: First, bake three minutes at 1750°; second, bake four minutes at 1740°; third, bake four minutes at 1750°; and finally, bake five minutes at 1800°. This will give a good porcelain.

Justi medium, first, bake three minutes at 2000°; second, bake at 2000° for two minutes; third, bake the same; fourth, bake seven minutes at 2100°. Each operator will have to vary these times, as experience teaches that some furnaces are slow and others are fast. These rules apply to all pieces, large or small. One should try to keep fusings consistent with time and temperature.

11. The previously fused Idepor models are placed in alcohol for a few seconds and the porcelain is mixed with alcohol.

12. The foundation color is placed in the bottom of the model and vibrated (Fig. 2).

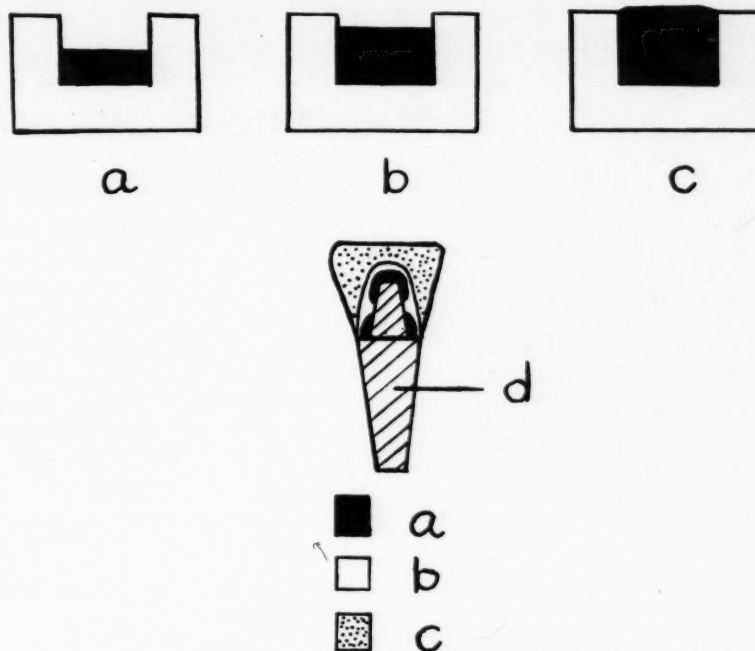


Fig. 2—A schematic drawing showing first (a), second (b), and third (c) bakes for inlays and also jacket crowns. For emphasis, it is here repeated that both porcelain and model are moistened with alcohol and hot water. This is an important point which is sometimes overlooked.

13. The models are allowed to dry for a short time at the doors of the furnace and are placed in the muffle at about 1600°.

14. In case of inlays, only about one third of the model is filled at the first bake, two thirds at the second bake; filled at the third bake; slight addition and final glaze on the fourth bake. Practical skill makes it possible to bake passable inlays in two bakes. Proximal incisal inlays should be baked slightly in excess of contour, and finally, finished in the mouth and reglazed if necessary. All pieces should be cooled slowly to improve the strength of the porcelain.

15. The Idepor is easily removed from the porcelain by immersing in water and brushing with a stiff brush.

16. Matching of colors is not especially difficult. The best plan is for the operator to bake his own porcelain for a shade guide. A little oblong bit of porcelain placed on platinum and fused will suffice. Gingival incisal and middle third colors may easily be matched.

17. Inlays of proper color translucency are constructed by first baking a darker porcelain in approximately the lower half of the cavity, then completing the inlay with a lighter enamel color carried to the margin. It may be necessary to use two enamel shades, deeper at the cervical and lighter at the incisal.

18. For jackets, the different shades are best laid on in layers, first

color covering the entire stump, then lighter enamel laid evenly on top of this, with final enamel color on top of this, as indicated in Fig. 2.

19. Unusual modifications, such as incisal translucency, hair line checks, and mottled areas are best laid on with stains. An unlimited variety of color combinations can be achieved even with a few colors.

20. The pieces are now inspected for fit, and gross inaccuracies indicate a faulty impression.

21. Fine feather edges are removed with clean, fine stones.

It will be noted that these inlays and crowns actually possess frictional retention as a result of the absence of the platinum matrix. The cavity side of the inlays and crowns are slightly granular from the Idepor, giving an ideal cementation surface. A dull gray appearance is caused by overfusing from refraction of light on small bubbles in the porcelain.

22. All cavities are carefully phenolized and the pulpal wall is protected by varnish before cementation.

23. Inlays should be perfectly polished flush with the margin of the tooth, if future staining is to be avoided. If, after cementation, the inlay is not entirely flush, it should be made so with fine stones.

24. Only a small amount of cement should be used for cementation, as close fitting inlays are difficult to seat.

(Continued on page 93)

## COMPENSATING RAMUS APPLIANCE

J. GALVIN WOODWORTH, D.D.S.

Buffalo, New York

A SOLDIER who lost his right ramus as a result of a gun shot wound during the World War had compensating appliances made which did not prove satisfactory.

### THE OLD APPLIANCE

A compensating ramus appliance made in 1924 apparently failed to function properly and showed excessive wear because of the following factors:

1. *No Occlusal Guide*—The occlusal surfaces of the crowns were devoid of cusps with incline planes, which should have been designed so that they could automatically, on closure, glide the jaw to place in proper occlusion on the left side and that sufficient power of mastication on this side could be exerted.

2. *Excursion of Mandible Limited*—The sliding pin and tube arrangement permitted the jaw to open only in an up and down vertical movement and did not provide for the extreme backward and lateral movement. This additional movement produced a strain on the appliance which caused the screws to loosen and the pin to wear, bend, and break. The tube would also become stretched and enlarged at the lower end. This arrangement did not allow for enough mobility in all directions but tended to hold the jaw from moving backward and laterally. It is my belief that this could only be accomplished with a system of springs but the springs would undoubtedly have to be so large and strong as to preclude their possibility of being used in the mouth. There is no necessity to avoid this movement but it is necessary to limit it. This, the compression spring arrangement on the new appliance will do.

3. *Limit Opening*—There was nothing to prevent the jaw opening excessively and dropping down on the right side with a consequent rotation of the left head of the mandible in the glenoid fossa. This deficiency permitted the jaw to drop down so that in January, 1932, when I first saw the patient for repair of the appliance the occlusal surfaces of the crowns did not come together within 2 mm. in the bicuspid region and the jaw had drifted backward and to the right, although it could easily be held back

in its proper position. This occlusal opening had increased to 5 mm. in October, 1933.

4. *Return of Mandible*—There was nothing to help the jaw return to its normal occlusion which the springs and the occlusal incline plane of the new appliance will do.

5. *Flexible Resistance to Mastication*—There was no permanent flexible resistance which would offset the power of mastication on the left side. The right side could open unrestricted and when power was exerted on the left side the mandible would only slide further to the right and masticating contact would be lost on the left. This made it impossible to chew solid food.

### THE NEW APPLIANCE

A new appliance was made to correct in so far as possible the mechanical deficiency caused by the loss of the right ramus. On account of the loss of the right ramus and because of a sliding to the right and backward of the mandible when the patient tried to chew on the left side, the power of mastication was lost. The mandible slides to the right be-

cause the occlusal angle of the natural teeth on the left side does not control the position of the jaw; therefore, what was needed to give the patient a fair degree of efficiency in mastication and comparative comfort was to build an appliance on the right side which would balance the occlusion, with the excursion of the mandible limited to certain areas but not blocked entirely. This limitation was accomplished by a sliding connecting rod between the upper and lower, swiveled at both ends to simulate somewhat the action of the temporal mandibular joint. A spring arrangement was used to aid in returning the jaw to normal occlusion. The occlusal surface of the crowns of the right side indicate the static position. This locking of the occlusion should not interfere with normal function. Fig. 1 shows the design of this appliance.

### THE THEORY OF OPERATION

The theory of operation is that each compensating tube is curved to simulate the curve of the glenoid fossa, so that in opening the jaw the ball heads of the connecting rod can

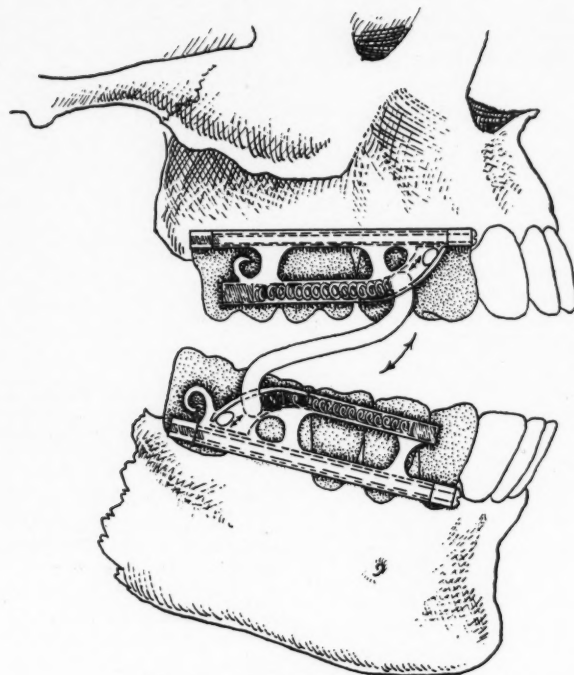


Fig. 1—Compensating ramus appliance.



Fig. 2—The four teeth on the upper and lower jaws of the right side were prepared for full cast crowns, making eight altogether. The reason for using eight teeth is to distribute the stress, control the occlusion, and make enough space to accommodate the remainder of the mechanical appliance. From individual impressions of the teeth, amalgam dies were made on which to make the individual cast crowns. These were carved to establish the occlusion sought. The crowns were cast and fitted in the mouth. A full impression of each jaw was taken to produce the models shown.

Fig. 3—The crowns in position showing the occlusal surfaces which were carved to control the lateral excursion of the mandible; also the brackets are shown which were attached to hold the remainder of the appliance.

Fig. 4—The slots in the models shown are for the purpose of removing the dies. They are also made large enough so that it can be seen that the dies are properly seated to place in the model. The brackets for the reception of the two main bars or large screws which carry the appliance are placed on the molars; they are threaded and have a tapered opening on the upper first bicuspid and lower cuspid. The remainder of the appliance is built on these two large screws and on their removal the most important and intricate part of the appliance can also be removed. The brackets are so placed that the appliance will not touch the crowns, and there is freedom of motion either to the right or left; the brackets are placed far enough away from the occlusal surface in order that the curve in the tubes will take the place of the curve of the glenoid fossa.

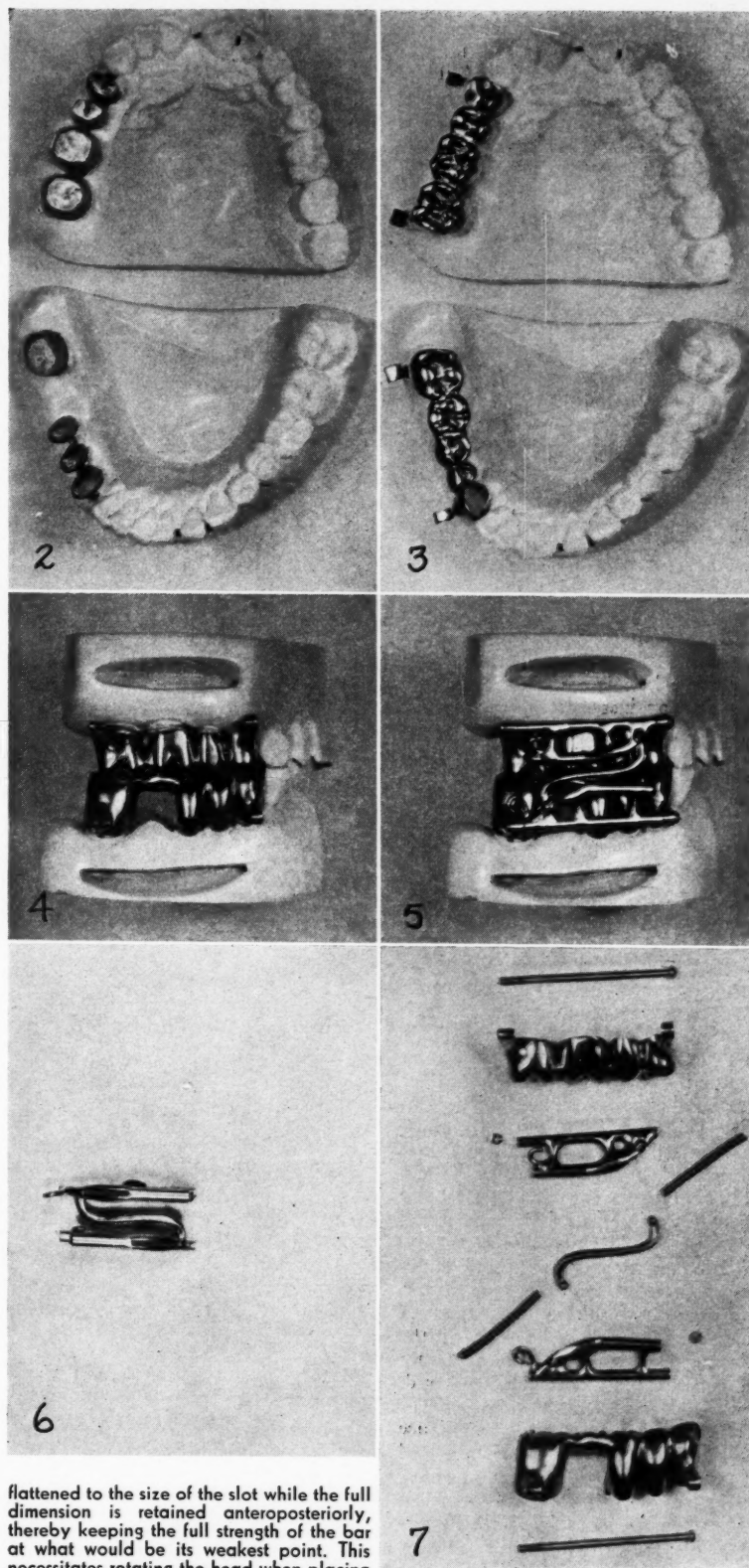
Fig. 5—Completed appliance showing the tube and spring return mechanism which is attached to the brackets shown in Fig. 3 by means of one large upper and one lower bar or screw placed through the horizontal tubes and brackets. This construction permits lateral mobility and also distributes the strain over a large area. This prevents wear and possible breakage for a considerable time.

Attached to the horizontal retention tubes are the curved compensating tubes with their enclosed compression springs. Into each tube is inserted the ball head of the curved connecting rod. The occlusal surface of the tube is slotted to allow the movement of the bar.

Fig. 6—View of the occlusal surfaces of the compensating tubes, showing the slots through which the connecting rod slides, the head of which compresses the enclosed springs on opening the jaw. The springs run the full length of the tubes and are inserted into the straight end of the tube which is later plugged with a small screw. The tube is kept as straight as possible to allow freedom of the springs. The compensating or curved end is strongly reinforced as is the edge of the slots.

Fig. 7—Various parts from top down, the measurements of which are shown: (1) horizontal retention bar; (2) cast crown soldered together with retention brackets; (3) horizontal retention tube with its attached compensating tube. The connection between the tubes is strongly made to reinforce both, especially at the point where the most strain is exerted.

The opening in the compensating tube into which the head of the connecting rod is inserted is reduced in size at the point where it connects with the slot in the occlusal surface. This is to prevent the head from jumping out of the slot when the lower jaw moves forward. The sides of the connecting rod are



flattened to the size of the slot while the full dimension is retained anteroposteriorly, thereby keeping the full strength of the bar at what would be its weakest point. This necessitates rotating the head when placing it into the tube.

(4) Compensating compression spring and screw plug which holds it in place in the tube. The hooks attached to the compensating tubes are for additional spring force if necessary. (5) Connecting rod is curved to

allow for the curve in the tubes. The heads are the full size of the rod and the shank is tapered on two sides down to the width of the slot at the head. The tapered side is shown in the picture.

follow the curved tubing without resistance, thus allowing the jaw to open and go slightly backward at the same time. If the tubes were not curved and the compensating portions were placed on a fixed angle perpendicularly there would be resistance to opening the jaw with resultant wear and strain.

The drop in each curve allows each ball head to move approximately one-fourth inch on opening the jaw; that is, the upper head of the connecting rod moves downward and backward one-fourth inch or less while the lower head moves upward and forward one-fourth inch. This one-half inch opening of the appliance allows an opening of at least three-fourth inch between the anterior teeth. There is also additional freedom and opening gained by a rotation of the connecting rod which provides some opening without the use of the springs. The complete opening allowed provides ample space for the introduction of food and its mastication.

As the ball heads move, they are working against the tension of the enclosed compression springs; when the jaw is closed by the muscular action of the left side, the springs force the ball heads back into their position and the incline planes of the occlusal surfaces glide the jaw back into normal centric relationship and maintain it.

Much masticating is done without the use of the springs by the simple rotation of the connecting rod. As the springs are about four times longer than the compression necessary, their elasticity is not easily imperiled. It is for this reason that enclosed compression springs were used instead of the regular spiral elongating or tension springs. With continual elongation or stretching, without anything to control the opening of the jaws, this type of spring would soon lose its tension. In effect there is really no unsprung strain or tension in the appliance, nor is the strain placed at any one point that might loosen, break, or wear out within a reasonable length of time. To be sure of the longest possible life of the appliance 20 per cent platinized gold was used.

#### CONCLUSION

It is true that the new appliance will be subject to wear over a period of years and that the springs may have to be replaced; but this is guarded against in so far as possible by the flexible design which permits the various forces to work, and by the size and thickness of the parts. It is also made so that the whole working mechanism can be easily removed for whatever repair is necessary.

Medical Arts Building.

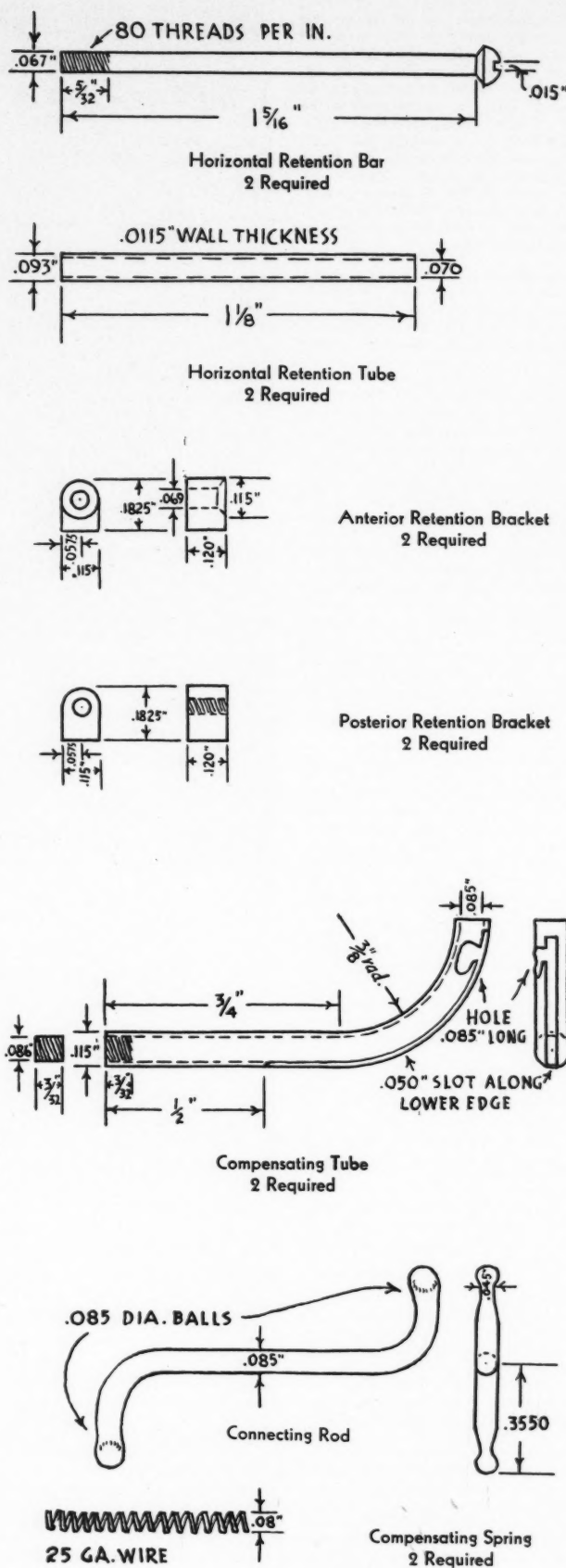


Fig. 8

## A SIMPLE METHOD FOR IMPROVING TOOTH FUNCTION AND FACE FORM

SAMUEL CHARLES MILLER, D.D.S.

New York

**T**HE question of the relationship of the occlusion of the teeth and the form of the temporomandibular articulations is one often considered by prosthodontists but rarely by the periodontist or the dentist restoring individual tooth form. That the equilibration of occlusion is conducive to health of the periodontium has often been demonstrated. In addition I have frequently relieved synovitis of the temporomandibular joint and even subluxations of this joint (often accompanied by a clicking) by changing the form of even one tooth. Although at first glance this may appear incredible, it is easy to understand that the constant forced shifting of the articular joint by a wedging action of improperly inclined cusp surfaces or malposed teeth can produce changes in the articular tissues. These changes may be chronic or acute.

The chronic changes result in atrophy of the synovial membrane and often in actual erosion of the bony surfaces, with the production of a clicking sound (usually on one side) when the mouth is opened beyond a certain point. It may be produced by malposition of the teeth or malformation of a tooth surface which causes a constant shifting of the condyle on a path not in line with the normal curve which it usually follows.

The acute type may be produced by the placing of a restoration for a part of a tooth or of a segment of the dental arch, so markedly aberrant from the general direction of either the anteroposterior occlusal curve or the arc which the occlusal surfaces of the teeth describe in a lateral direction, that the temporomandibular articular surfaces cannot properly pass each other, and compression or injury to the synovial membrane takes place. An inflammatory process is thus produced, accompanied by pain, swelling in the region of the joint, trismus, and difficult mastication.

The relief of such conditions can readily be accomplished by shaping of the offending tooth surface or restoration so that it conforms to the gen-

eral arc of the two "functional curves" mentioned.

When the mandibular movement is limited, either as a result of lack of wear of teeth with prominent cusps or because of a limited function producing a locked intercusping of the dental arches, the joint of the mandible with the skull as well as the muscles that are utilized in the movements of the mandible are atrophied in proportion to the limited work they are required to do.

A study of the contour of another person's face by a mirror reflection (instead of by direct observation) will reveal that the asymmetry of facial muscular development, owing to the greater functioning of the jaw on one side than the other, is practically universal. Elimination of these conditions by shaping the teeth to the functional form which they should have reached at the age of the particular patient (commensurate with root length and bony support)

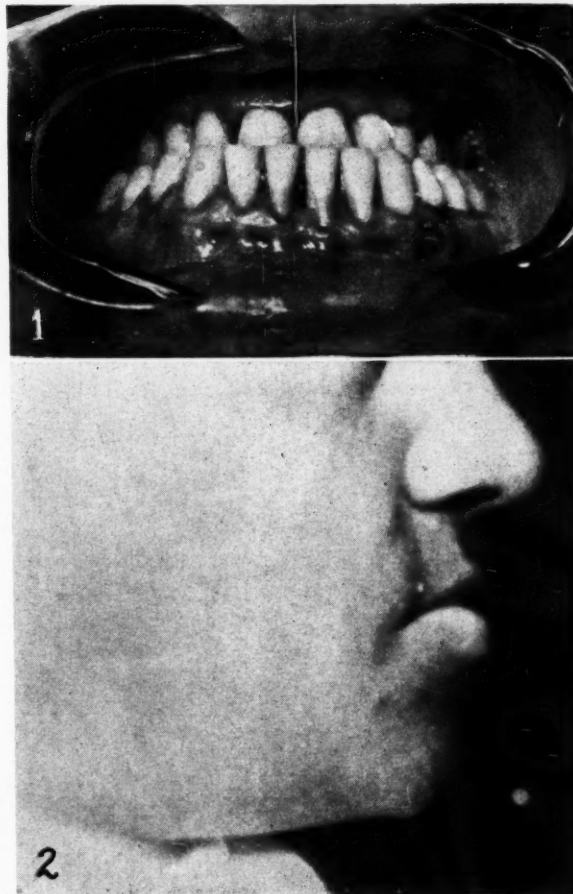


Fig. 1 (Case 1: A man, aged 27)—Bite before shaping of occlusion to produce a new centric. (November 12, 1930.) Note lower teeth overlapping uppers.

Fig. 2 (Case 1)—Note ugly lip relationship before grinding. (November 12, 1930.)



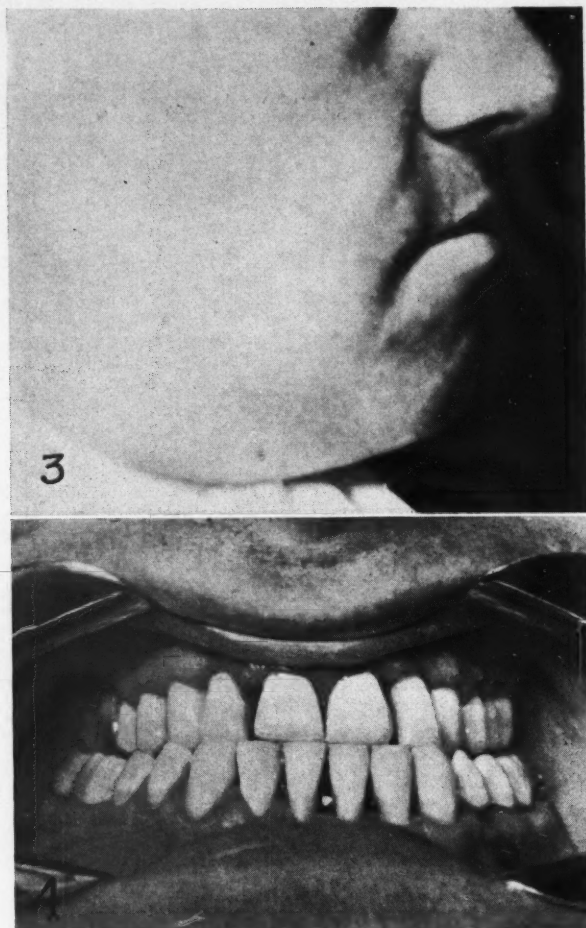


Fig. 3 (Case 1)—After shaping of occlusion, showing changed contour of lower part of face with jaw in its comfortably related new centric occlusion. (December 18, 1930.)

Fig. 4 (Case 1)—Relationship after shaping occlusion to new centric. The patient had no desire to go into old occlusal contact and the gingival tone and cleanliness of teeth with no food impaction are satisfactory. (October 13, 1933.)

will, within a few days, allow broad and complete bilateral excursions of the mandible. A few cases have been observed in which this result was not obtained. Roentgenographic examination of the temporomandibular articulations showed that an actual change had taken place in the contour of the bony surfaces making up the joint.

Most striking of this entire group of cases is that in which the mandible has been shifted to a forced protrusive position which becomes the only comfortable centric relationship of the jaws. The space between the head of the condyle and the glenoid fossa is accentuated; the jaw protrusion produces the distorted physiognomy and pugnacious appearance seen in true mesio-occlusion cases. The lower anterior teeth are facial to the uppers and usually the lower posteriors have the same outside relationship. Except for the form of each tooth the condi-

tion is as if the arches were inverted.

I have already successfully treated a number of these cases and have kept several patients under observation for periods up to five years. Although it is conceded that orthodontia is the ideal solution to this problem, it must also be admitted that many adults cannot undergo a prolonged period of treatment with the incidental expense and temporary loss of esthetics.

Before this treatment is undertaken, the operator must be sure that the patient is able voluntarily to bring the anterior teeth into a tip-to-tip relationship. This means that the condyles can be retruded somewhat and there is the possibility of obtaining a more distal centric. *If this cannot be done*, it should be considered that the condyles are in their furthestmost posterior position and, therefore, grinding of the teeth will not produce any distal shifting. Also, when

the protrusion of the lowers is so excessive that an improved morsal contact cannot be obtained, this procedure should not be adopted.

#### TECHNIQUE

1. The anterior teeth are brought into contact in the tip-to-tip position and the high or interfering surfaces are noted and ground. A small smooth wheel-shaped stone is best fitted for the grinding of enamel surfaces. No attempt is made at beveling, the object being rather to obtain flat incisal surfaces at the start. With esthetics continually in mind and constant checking to be sure that the furthestmost comfortably retruded position is maintained, the anterior teeth are shortened until posterior contact is produced. An articulating paper which marks easily is used as an aid in locating the high surfaces that are interfering with the setting down of the bite.

2. When posterior contact is produced, these occluding spots, as well as the anterior markings, are ground until the occlusion is divided over as much surface as possible.

All this need not be done in one visit; it is preferable to divide the treatment over a series of visits, consuming from four to eight weeks, so that the change will be a gradual one. The patient is advised to use the new centric position rather than the old one. It is surprising to see that without any difficulty the patient comes to prefer the new centric and soon has no desire to place the teeth in their old relationship.

3. After the centric occlusion has been established and the patient is completely accustomed to it, the lateral excursions (working bite) can be regulated. It will be found that the lateral excursions are not extensive in these cases but, despite this, interference must be eliminated so as to allow as much freedom of function as possible. Thus, the mandible will gradually develop a broader excursive field with increased masticatory efficiency.

4. Periodontal conditions that have been produced by the continual wedging forward of the teeth in the old centric position now become amenable to treatment by curettage and gingival massage, thus completing the health cycle.

#### SUMMARY

There is a definite relationship between many types of inflammatory changes of the temporomandibular articulation (synovitis and subluxation) and certain occlusal abnormalities. These abnormalities may be developmental changes or are artificially

Fig. 5 (Case 2: A woman, aged 42)—Diagnostic casts of teeth before treatment. Note lower anterior teeth overlapping uppers in this, the only comfortable centric relationship. (March 28, 1932.)

Fig. 6 (Case 2)—Profile of the lower part of face before balancing of occlusion to the new retruded relationship. Note protrusion of lower lip and chin. (March 28, 1932.)

Fig. 7 (Case 2)—After completion of treatment showing proper lip relationship and changed facial contour. (June 10, 1932.)

Fig. 8 (Case 2)—After treatment was completed and patient was under observation for a period of one year. Note the tip-to-tip relationship of teeth. It is impossible for this patient to make the old centric contact at the present time. (May 10, 1933.)

produced by habit or dental treatment.

Actual distal shifting of the mandible has been shown to exist, and an original method of correction by changing of the occlusion has been described.

The simplicity of the entire procedure makes it acceptable for application by all general practitioners.

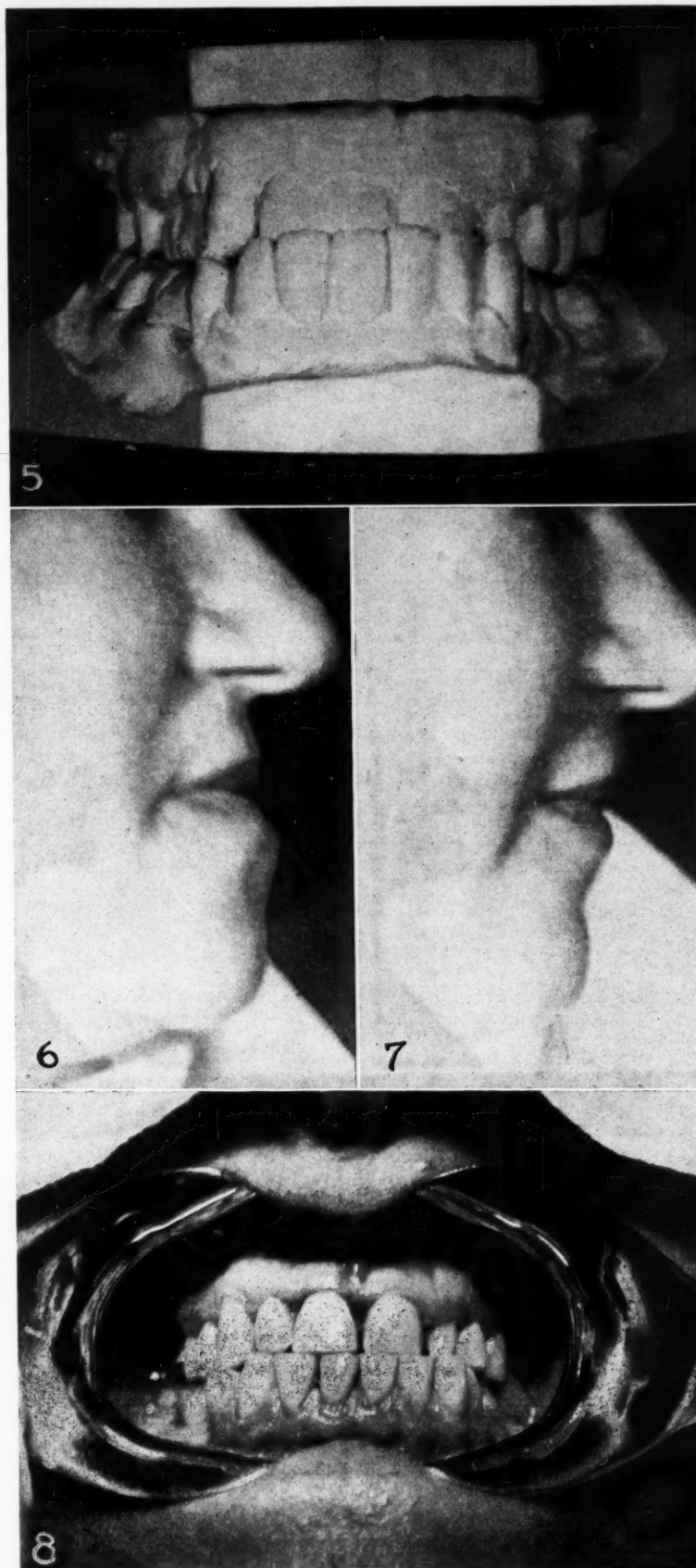
57 West Fifty-Seventh Street.

## A SIMPLE OCCLUSAL INLAY TECHNIQUE

(Continued from page 79)

revolve the stone from the gold toward the tooth structure. When this has been done to the satisfaction of the operator and so that the margins may not be caught with the explorer, the inlay is removed by grasping the central post with the cotton pliers. The inlay may now be held by means of an inlay holder with the prongs placed so as not to damage the margins; the central post is cut off and this area of the inlay is carved with gold burs. The inlay is then set, the final polishing being done in the mouth after the cement has set, so as to eliminate the polishing of the delicate margins.

4657 North Western Avenue.



# A SIMPLIFIED ADAPTATION\*

of

## THE SOCIAL SECURITY BILL FOR HEALTH INSURANCE\*\*

or

### "The Health Insurance Law"\*\*\*\*

(An Act to Provide for the Establishment and Administration of a System of Health Insurance.)

#### SECTION 1: Definitions.

- 2: Premiums.
- 3: Cash Benefits.
- 4: Maternity Benefits.
- 5: Medical Benefits.
- 6: Voluntary Insurance.
- 7: Administration.
- 8: Adjudication of Claims.
- 9: Fees and Compensation of Attorneys.
- 10: Oaths and Subpoenas.

#### SECTION 11: Health Insurance Fund.

- 12: Subrogation.
- 13: Duties of Employers.
- 14: Collection of Defaulted Payments.
- 15: Waiver of Assignment.
- 16: Penalties.
- 17: Saving Clause.
- 18: Separability of Provisions.
- 19: Appropriation.
- 20: Short Title.
- 21: Effective Date. (Immediate.)

#### II. PREMIUMS:

- A. Accrue and become payable to Health Insurance Fund
  - a) at fixed intervals prescribed by Health Insurance Commission;
  - b) through Health Insurance Commission
  - c) to be turned over to state treasurer for crediting of premiums to fund.
- B. Are paid by
  1. Employer (having three or more employees, excluding farm laborers)
    - a) 3.5 per cent of all wages paid of \$20 or less a week.
    - b) 2.5 per cent of all wages paid over \$20 to \$40 a week.
    - c) 1.5 per cent of all wages paid in amounts more than \$40 a week.
  2. Employee (includes aliens and minors; excludes non-manual laborer receiving more than \$60 a week.)
    - a) 1 per cent of wages of \$20 a week or less.
    - b) 2 per cent of wages over \$20 to \$40 a week.
    - c) 3 per cent of wages over \$40 a week.
  3. State:
    - 1.5 per cent of total of all wages paid by employers to employees.
- C. Employees' share deducted from regular wages by employer, and
  - a) held apart as trust funds until
  - b) remitted to Health Insurance Commission.
- D. Tax exempt.

#### III. CASH BENEFITS:

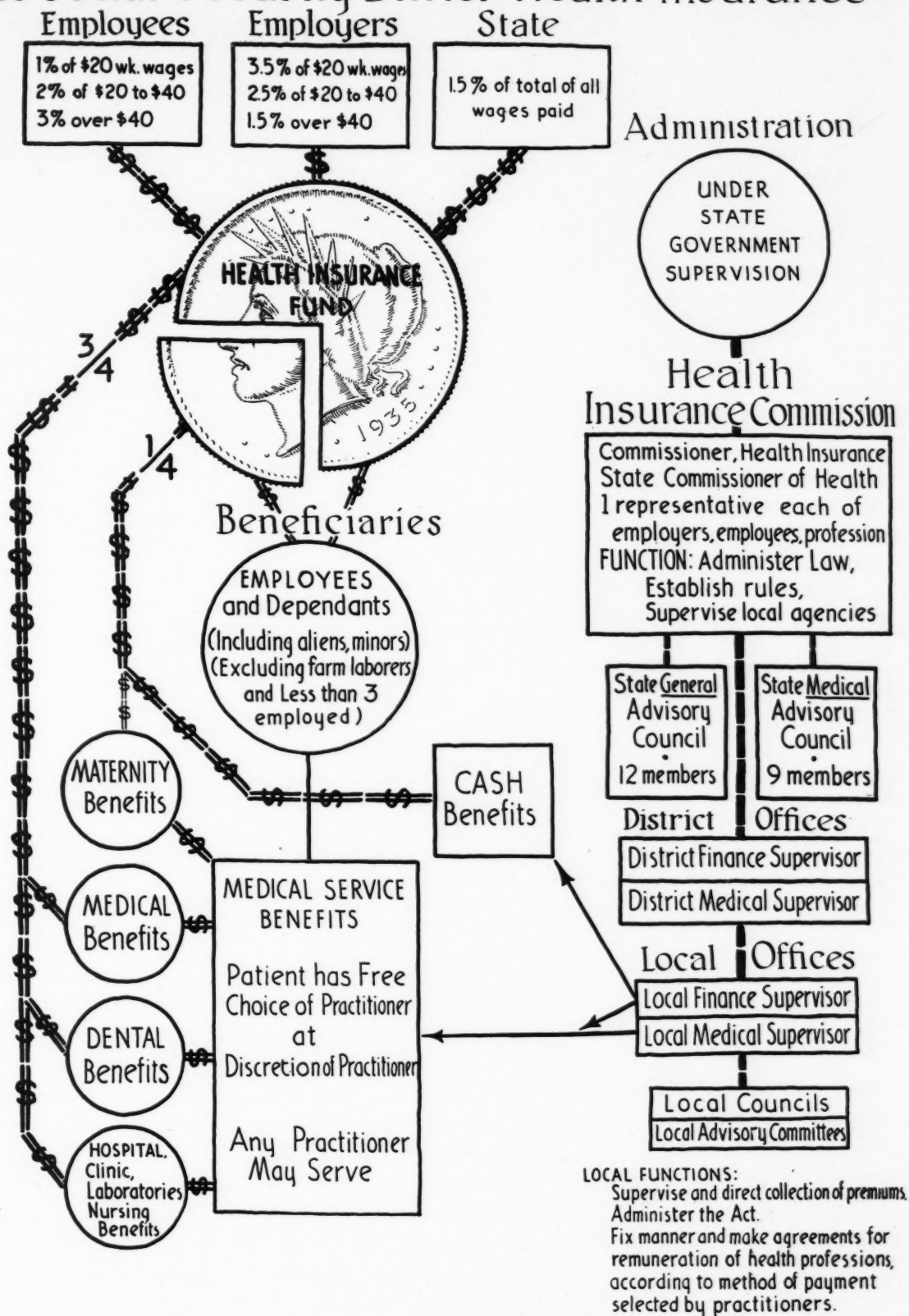
- A. Paid for each day of loss by Commission to employees who
  1. sustain loss due to disability amounting to 5 days' full time wages (five-day waiting period).
  2. give notice of disability and its continuance.
  3. have not less than 104 days of employment and/or
  4. voluntary cash insurance within 12 months preceding.
    - a) alternative: have not less than 160 days of employment
    - b) and/or voluntary cash insurance within 24 months preceding.
  5. are not receiving benefits under any workmen's compensation act.
- B. Begin 6 months after premiums accrue and become payable.
- C. Limited to 156 days within 52 consecutive weeks.
  1. Again eligible for benefit after
    - a) 60 days of employment and/or
    - b) voluntary cash insurance.
  2. Items 4 and 5 under A of Cash Benefits.
  3. Qualification remains effective after becoming unemployed:
    - a) 1 day for every 5 days of employment during preceding five years
    - b) and/or voluntary cash insurance.
    - c) may receive benefit of unused extension when again employed or voluntary cash insurance is secured.
- D. Amount to 50 per cent of employee's full time daily wages not to exceed \$15 per week:
  1. plus 10 per cent of wages for dependent spouse: not to exceed \$3 per week; or
  2. plus 5 per cent of wages for one dependent child: not to exceed \$1.50 per week; or
  3. plus 10 per cent of wages for two dependent children: not to exceed \$3.00 per week; or

\*The main divisions (given in Roman Numerals) are comparable to the exact Sections of the Bill. All other numbering and lettering apply only to the outline presented here. This adaptation was prepared by the editorial staff of THE DENTAL DIGEST.

\*\*\*\*Proposed Draft of a Model State Bill for Health Insurance Prepared by the American Association for Social Security, in cooperation with Leading Authorities, including Interested Practitioners. The Drafting of the Bill Was Done Principally by Professor Herman A. Gray of the New York University Law School. While the complete section items are given here, in the outline proper, only those parts of interest to dentists and physicians directly are included.



# The Social Security Bill for Health Insurance



4. plus 15 per cent of wages for three or more dependent children: not to exceed \$4.50 per week.

#### IV. MATERNITY BENEFITS:

- A. Paid by Commission to
  - a) woman employee
  - b) wife of qualified employee
  - c) widow of qualified employee (if child is born within 10 months of his death)
    1. having 250 days of employment and/or
    2. voluntary cash insurance during 24 months preceding;
    3. who has registered.
- B. Begin 6 months after premiums accrue and become payable.
  1. Received 6 weeks before and continue 6 weeks after birth of child.
  2. Disqualified if employed during this period for period employed.
  3. Not affected by cash benefits:
    - a) not included in 156 days for which entitled to cash benefits.
    - b) payable even if right to cash benefits has terminated.
  4. Qualification remains effective after becoming unemployed:
    - a) 1 day for every 5 days of employment during preceding five years
    - b) and/or of voluntary cash insurance.
    - c) may receive benefit of unused extension when again employed or voluntary cash insurance is secured.
- C. Equal in amount to cash benefits to which person would be entitled for loss due to disability: Plus \$15 on birth of child.

#### V. MEDICAL BENEFITS:

- A. Provided by Commission.
  1. beginning 3 months after date premiums accrue and become payable.
  2. to entitled persons:
    - a) employee
    - b) employee's dependent spouse
    - c) dependent children
    - d) other dependents living in same household.
  3. to qualified persons:
    - a) not provided for under any workmen's compensation act.
    - b) having not less than 10 days of employment } within 3 months
    - c) and/or voluntary medical } preceding.
    - d) giving notice of need and continuance of need.
- B. Consist of:
  1. services of a general medical practitioner
    - a) at office, home, hospital, or elsewhere: not exceeding 26 weeks.
    - b) in preventive, diagnostic and therapeutic care; immunizations and periodic physical examinations.
  2. on the prescription of the general medical practitioner or of the specialist prescribed by him:
    - a) general and special hospital treatment and care including nursing and other usual hospital services:
      - (1) for a period not over 111 days: first 21 without charge.
      - (2) 15 per cent of cost for remaining 90 days charged to recipient
      - (3) not to be furnished to any person 65

years of age or more for more than 90 days in 104 consecutive weeks.

- b) prenatal and maternity treatment and care at home or hospital.
  - c) services of a surgeon, diagnostician, medical or other specialist
    - (1) wherever necessary
    - (2) with services of laboratories and clinics } not exceeding 12 weeks.
  - d) drugs, medicines, ordinary medical and surgical appliances (additional benefit);
  - e) nursing service outside of the hospital (additional benefit);
  - f) institutional care for convalescents (additional benefit);
  - g) special medical or surgical appliances, such as eye glasses, artificial limbs, trusses (additional benefit.)
3. THE SERVICES OF A GENERAL DENTAL PRACTITIONER:
    - a) "in exodontia, plastic fillings, and prophylactic treatment and care
    - b) "in such other treatment and care, including restorative work, as may be necessary to correct conditions which the commission finds are seriously prejudicial to health, or are causing or threatening to cause disability, or are interfering or threatening to interfere with the pursuit of a gainful occupation." (Not exceeding 26 weeks.)
    - c) on the prescription of the dentist in charge, special appliances, such as dentures (additional benefit).
    - d) on the prescription of the dentist in charge, services of a dental specialist (additional benefit).
  - D. Such services considered "additional benefits" may be furnished
    - a) without charge to recipient
    - b) or on condition that portion of cost is borne by recipient
    - c) for entire state
    - d) or only localities from which fund receives excess revenues.
  - E. Commission may provide and develop facilities (hospitals, clinics, etc.) considered necessary after investigation; to be paid for by fund.
  - F. If employee becomes unemployed his qualification remains effective as under Cash Benefits. In event of death, dependents may receive benefits not utilized.

#### VI. VOLUNTARY INSURANCE: To persons not otherwise subject to act.

##### A. Tax Exempt.

##### B. Voluntary Cash and Maternity Benefits to:

1. Any resident of state employed in an employment not subject to act
  - a) who has not reached 65th birthday
  - b) who successfully passes health examination
  - c) health examination not required if within preceding 3 years resident had no less than 260 days of employment and/or voluntary cash insurance.
  - d) pays to fund  $1\frac{1}{8}$  per cent of wages.

##### C. Voluntary Medical Benefits to:

1. Any resident of state not suffering disability with
  - a) net income \$60 a week or less
  - b) not reached 65th birthday.
  - c) pays into fund  $3\frac{3}{8}$  per cent of income.
2. Any resident of state not suffering disability
  - a) who within preceding 3 years had no less

than 260 days of employment and/or voluntary medical insurance;

- b) whose net income is not over \$100 a week
- c) who pays into fund amounts equal to 3¾ per cent of income.

3. Any resident who within preceding 3 years had no less than 260 days of employment and/or voluntary medical insurance who is unemployed but ready to work.  
Pays periodically into fund 3¾ per cent of average weekly income during preceding three years.

4. Any resident receiving old-age or unemployment benefits from government officer or agency, if such officer or agency pays into fund amounts fixed by commission.

D. Qualifications prolonged as under other Benefits.

E. Voluntary Additional Medical Benefits:

- 1. Furnished by Commission for additional voluntary premiums.
- 2. Determined and arranged by commission.

F. Payment of Premiums:

- 1. Paid to commission at regular and fixed intervals.
- 2. Paid over to treasurer of state by commission.
- 3. Credited to fund by treasurer of state.
- 4. Provisions made for payments in arrears.

G. State Premiums:

State pays into fund 1/3 of all sums paid into fund by those paying voluntary cash and maternity benefits and those paying voluntary medical benefits.

H. Payments need not be made during periods of disability.

## VII. ADMINISTRATION:

1. Health Insurance Commission:

Composed of

- a) Commissioner of Health Insurance (Chairman)
- b) State Commissioner of Health
- c) Three members
  - (1) a representative of employers
  - (2) a representative of employees
  - (3) a representative of professions furnishing medical benefits.

2. Term of Commission:

A. Appointed by governor with advice and consent of senate:

- a) 30 days after enactment of act:
  - (1) one member for term of 2 years;
  - (2) one member for term of 4 years;
  - (3) one member for term of 6 years
- b) a commissioner of health insurance for term of 6 years.

B. Upon expiration of terms, appointments or re-appointments are made for term of six years.

C. Vacancies filled by appointment by advice and consent of senate.

D. Each member takes constitutional oath of office.

E. No member of commission can hold position of trust or profit or engage in any occupation interfering with duties of commission.

F. Governor may remove commissioner for cause after hearing.

3. Compensation of Commission:

A. Each of the three appointed members to receive an annual salary of — thousand dollars.

B. Each member allowed actual and necessary expenses.

C. Each member to give a bond in sum of — thousand dollars.

- a) bond must be approved by governor;
- b) filed with treasurer of state.

D. Commissioner shall receive annual salary of — thousand dollars plus expenses.

4. Organization of Commission:

A. Majority of commission constitutes a quorum to transact business.

B. Vacancy does not impair remaining majority to act.

C. Any duty of commission may be undertaken by any one or more of members or authorized deputies; any order made when approved and recorded to be considered order of commission.

5. Office and Seal of Commission:

A. To maintain a principal office in city of —.

B. To provide itself with seal of authentication.

C. May hold sessions in any place within state.

6. Duties and powers of Commission:

A. To enforce and administer this act.

B. To have all duties, powers, authorities imposed and granted by this act.

C. To establish standards of administration; to make rules and regulations; to make necessary amendments and modifications of rules; to supervise, control, and make inquiries into administration of act toward improvement.

D. To appoint or employ, and determine salaries and duties of

- (1) district and local finance and medical supervisors and managers;
- (2) members of the appeal board;
- (3) any other necessary assistants.
- (4) Such appointees or employees to be in competitive class of Civil Service. (This does not include, however, representatives of professions or persons on local councils.)
- (5) Those receiving or disbursing funds give bond approved by commission.

E. To supervise, control, approve, nullify, or modify acts of

- (1) district finance and medical supervisors;
- (2) local finance and medical managers;
- (3) local councils.

F. All acts of supervisors, managers, and councils must be approved by commission to be valid. Local arrangements may be nullified if found improperly handled and new arrangements made in furnishing benefits by commission itself.

G. After a hearing on written charges, to remove any general medical or dental practitioner, surgeon, other medical or dental specialist, hospital, clinic, laboratory or other person or agency from the list of those who have agreed to furnish medical benefits: on proved adequate cause.

H. To arrange for furnishing medical benefits to entitled persons who are not residents of the state.

I. To investigate causes and results of sickness and injuries and sources of mortality; to publish such data; to take steps to reduce sickness and death rate and improve health conditions.

J. To make donations to agencies furnishing medical benefits or engaging in medical research, if fund permits expenditures.

K. To acquire or erect buildings necessary for administration of act.

7. State Advisory Councils:

A. State General Advisory Council: Appointed by governor

- a) thirty days after enactment of act;
- b) who may remove any member for cause after hearing.

B. Composed of twelve members:

- a) 3 representatives of employers



- b) 3 representatives of employees
    - c) 3 representatives of professions furnishing medical benefits
    - d) 3 representatives of public
  - C. One representative in each group to serve for 2 years; one for 4 years; one for 6 years. At expiration of terms, appointments for reappointments made in all cases for 6 years.
  - D. Functions:
    - (1) advise commission on administration of act and benefits;
    - (2) recommend changes;
    - (3) make full investigations;
    - (4) have access to all sources of information.
  - E. State *Medical Advisory Council*: Appointed by governor who may remove for cause:
    - (1) Composed of nine members:
      - (a) 3 to serve 2 years;
      - (b) 3 to serve 4 years;
      - (c) 3 to serve 6 years.
      - (d) at expiration of terms appointments to be made for 6 years.
    - (2) Representing:
      - (a) the general medical and dental practitioners;
      - (b) surgeons and other medical and dental specialists;
      - (c) hospitals, laboratories, clinics;
      - (d) nurses.
    - (3) Functions:
      - (a) advise commission on all matters connected with administration of medical benefits;
      - (b) recommend changes.
  - F. Vacancies to be filled by appointment by governor for unexpired term.
  - G. Both councils serve without salary. Expenses to be paid.
8. District Offices:
- A. Commission divides state into health insurance districts with office in each district.
  - B. Commission appoints:
    - (1) district finance supervisor:
      - a) to collect premiums;
      - b) to disburse cash and maternity benefits;
      - c) to defray cost of medical benefits and general administration of act.
    - (2) district medical supervisor (physician): to supervise and direct administration of cash, maternity and medical benefits.
  - C. District supervisors: full time employees, serving on annual salary basis.
9. Local Offices:
- A. Commission divides each district into local areas.
  - B. Commission maintains office in each local area.
  - C. Commission appoints:
    - (1) local finance manager
    - (2) local medical manager (physician).
  - D. Local managers: full-time employees serving on annual salary basis.
10. Local Councils:
- A. One local council in each local area.
  - B. One local council designated by commission composed of 7 members:
    - (1) one appointed representative of professions furnishing medical benefit
    - (2) one appointed representative of employers;
    - (3) one representative of employees;
    - (4) the local finance manager (chairman);
    - (5) the local medical manager;
    - (6) the public health officer or his authorized deputy.
  - C. One appointee to serve for 1 year; one for 2 years; one for 3 years. At expiration of terms, appointments made for 4 years.
  - D. Vacancies filled by appointments for unexpired term by Commission.
  - E. Commission may remove appointed member for cause after hearing.
  - F. Appointed members paid for service on per diem basis; plus expenses. Rate fixed by Commission.
11. Local Advisory Committees:
- A. In all respects subject to advice and consent of Commission.
  - B. Appointed by each Local Council.
  - C. Local Council may appoint as many committees as necessary.
  - D. Each local advisory committee to consist of from 3 to 5 members.
  - E. Advisory committees to serve without salary. Expenses to be paid.
  - F. Local advisory committees may represent any one, or any two or more of the following groups:
    - (1) employers;
    - (2) employees;
    - (3) general medical practitioners;
    - (4) general dental practitioners;
    - (5) surgeons or medical or dental specialists;
    - (6) hospitals, laboratories, or clinics;
    - (7) pharmacists;
    - (8) nurses, etc.
  - G. Duties of Local Councils:
    - (1) supervise and direct the collection of premiums;
    - (2) supervise and direct calculation of any payment of cash and maternity benefits; notices and proof of sickness, injury and disability; disbursements in providing benefits and defraying expenses.
    - (3) supervise and direct furnishing of medical benefits.
    - (4) cooperate with public health officers in promotion of health.
    - (5) prepare and publish lists of general medical and dental practitioners, surgeons and other medical and dental specialists, pharmacists, nurses, hospitals, clinics, laboratories, and other persons and agencies within local areas with whom arrangements have been made to furnish medical benefits.
    - (6) arrange with other local councils or with practitioners or agencies in other local areas to furnish adequate benefits when facilities within its local area are inadequate.
    - (7) fix manner and make agreements for payments to medical and dental practitioners, specialists, and agencies furnishing medical benefits, subject to approval of commission, in any one of the following modes:
      - a) salary system;
      - b) per capita system in which payment will be based on the number of persons entitled to medical benefits included in the practitioner's list;
      - c) a fee system in which payment will be based on extent and character of treatment given and services rendered by practitioner to persons entitled to medical benefits;
      - d) any combination or modification of the systems stipulated. NO MODE FOR REMUNERATING GENERAL

MEDICAL OR DENTAL PRACTITIONERS SHALL BE ADOPTED FOR ANY LOCAL AREA WITHOUT THE CONSENT OF A MAJORITY OF THE GENERAL MEDICAL OR DENTAL PRACTITIONERS IN THAT LOCALITY WHO HAVE AGREED TO FURNISH MEDICAL BENEFITS UNDER THIS ACT.

- (8) Anyone dispensing medical benefits may be removed on hearing or written charges for inefficiency.
  - (9) To distribute on a pro rata basis among the several practitioners who have agreed to furnish the medical benefits those entitled to such benefits who after due notice have failed to make a selection or who have been refused by the practitioner whom they have selected.
  - (10) Local Advisory Councils to consult on all matters with local advisory committees of local areas and suggest improvements.
- H. Duties of Local Finance Managers:  
Manage the disbursements and pass on all matters pertaining to the financial administration of act.
- I. Duties of Local Medical Managers:
- (1) manage and pass on notices and proof of sickness, injury and disability; and complaints;
  - (2) pass on and determine claims for cash, maternity and medical benefits;

- (3) manage the furnishing of medical benefits;
- (4) supervise and examine the services rendered by all persons and agencies furnishing the medical benefits.

J. Patient may select his own practitioner from list: Practitioner may accept or refuse patient.

#### VIII. HEALTH INSURANCE FUND:

- A. Administered by state without liability to state beyond amounts paid into and earned by fund.
- B. Consists of
1. all premiums and money paid into and received by fund;
  2. property and security acquired by and through the use of monies belonging to fund;
  3. interest and other income earned by fund.
- C. Division of Fund:
1. One-fourth:
    - a) premiums;
    - b) state premiums;
    - c) voluntary cash and maternity benefits;
    - d) interest and income earned under a, b, and c;
 Pays for cash and maternity benefits and administration of these.
  2. Three-Fourths of premiums and money received by fund:
    - a) to be held and accounted for separately;
    - b) used to pay the cost of medical benefits and the administering of benefits
    - c) money paid into fund for voluntary additional medical benefits to pay for such benefits.

## CONSTRUCTION OF PORCELAIN INLAYS WITHOUT A PLATINUM MATRIX

(Continued from page 81)

25. Orangewood sticks and mallet may be used as an aid in setting inlays.

26. Opaque linings should be avoided in all but the deepest cavities and then only as a protection to the

pulp during the process of impression taking. Porcelain being a poor conductor of heat, it will protect the pulp against thermal shock. Deep cavities increase frictional retention which makes restorations more per-

manent. Inlay cavities should go well into the dentine. This gives the operator a chance to build both dentine and enamel color into the inlay, thus making a better color match.

Thirty-Fourth St. and Central Ave.

## ABOUT OUR CONTRIBUTORS

L. A. HAWKES, D.D.S. (University of Pennsylvania College of Dental Surgery, 1902) had another article on ROOFLESS DENTURES in THE DIGEST in September, 1933.

BENJAMIN KROHN, D.D.S. (Chicago College of Dental Surgery, 1927) had an article in THE DIGEST in August, 1932: WAXING TECHNIQUE FOR REMOVABLE CASTINGS.

ROBERT K. GEORGE received his D.D.S.

from Indiana University School of Dentistry in 1926. Doctor George is a member of the American Dental Association and component societies and is engaged in general practice with a special interest in ceramics.

J. GALVIN WOODWORTH, D.D.S. (University of Buffalo, 1917) is a member of the A. D. A., Eighth District Dental Society, and the New York State Dental Society. His articles have appeared in sev-

eral dental periodicals on the subject of prosthodontia in which Doctor Woodworth specializes.

SAMUEL CHARLES MILLER, D.D.S. (New York University College of Dentistry, 1925) contributed an article, DIAGNOSIS OF LESIONS OF THE ORAL MUCOUS MEMBRANE, in the March, 1932, issue of THE DENTAL DIGEST. Doctor Miller's complete professional biography appears in that number of the magazine.

## The Editor's Page

**W**HAT *does* constitute adequate dental care in money terms?

Studies of the Milbank Memorial Fund indicate that in compulsory health insurance service, including the services of the general medical practitioner, basic dentistry, nursing, and hospital care, such service would be obtained at a cost of about \$27.00 a year per person if the entire population were insured, and for less if all but the well-to-do were covered. These studies by the Milbank Memorial Fund agree very closely with the study made by the Michigan State Medical Society.

It will interest dental readers to know that in the Michigan Plan \$28.00 per person a year includes complete medical care with \$5.00 set aside for dental care. Although this allocation may appear unsatisfactory to dentists, it should be remembered in fairness to the Michigan State Medical Society that in the statistical study of the composition of the total medical bill of 8,639 white families with known incomes in the state of Michigan the dentist received 18.5 per cent, which translated into terms of insurance coverage would be about \$5.00 of the estimated \$28.00 per capita. In the original so-called Model State Health Insurance Bill formulated by the American Association for Social Security, the dental benefits are the following: "the services of a general dental practitioner in exodontia, amalgam fillings and prophylactic treatment and care." In the revised version of this Model Health Insurance Bill the dental benefits were modified as given in the outline adaptation of this bill under B of "Medical Benefits," item 3 on page 90 of this issue.

Suppose we are faced with some widespread form of third party practice under a national system of health insurance. What should the dental benefits include? We will not be satisfied with \$5.00 a year per person and we will not be satisfied with extracting teeth and placing amalgam fillings. But what justification have you and I for demanding that the dental benefits be larger in money values to include more services? The imposing statistical analyses show that about \$5.00 is the average amount spent per person

a year for dentistry. We can say, to be sure, that only 20 per cent of the people receive dental care and should adequate care be given to everyone in the population, the cost would be several times \$5.00 a year.

In fact, as a profession, we have tried to impress the public with this ideal; namely, that more persons should buy dentistry and that they should budget more per year for dental services. Under a system of health insurance, are we going to demand adequate dental benefits for all people or are we going to retreat from our established professional tradition of public education and insist that dental benefits be contracted and made smaller? Are we going to assume the contradictory position that adequate and complete dental care is only for persons who prefer and can pay for dental care in private practice? Are we going to make economic class distinctions the criterion for adequacy? If we do, I fear the wrath of public opinion.

If we wish to be consistent, if we wish to be realistic, we must admit that the day of unproductive debate and discussion is coming to an end, and we must take this firm position: If we believe that the principle of health insurance represents a social good; that it represents civilized advancement, we, as a profession, must be the ones to formulate the plans and erect the safeguards to professional values and to the public. Rather than "sulk in our tents" and hide behind trees, and oppose the experiment at every turn, we should be in the forefront in the planning. Dentists must see that the beneficiaries of health insurance receive the best kind of dental care which will cost not \$5.00 a year per person, but perhaps \$20.00 or \$25.00 a year per person. Everything that has been developed by the science and technology of dentistry must be made available to the beneficiaries of health insurance. The tooth-pulling, amalgam-slapping kind of service is not adequate and the professional groups must not accept it. If we are to have health insurance, it should represent a real and adequate dental coverage and service which is consistent with the scientific advancements of the profession.



We must anticipate, however, that whenever we point out the increasing costs of dental benefits in a health insurance plan, we are immediately faced with the opposition of the insurance administrators and, unfortunately, of our medical colleagues. In the first instance, the insurance administrators will say that an approximate \$20.00 a year per person appropriation for dentistry would make the costs prohibitive. In the second instance, when we demand more money for dentistry, our medical colleagues will feel that we are cutting too deeply into the total medical dollar and demanding too great a share.

We see all around us the rising tide of pub-

lic opinion; the public opinion that recognizes that we are not vested interests; that we are not a class of special privilege; that we are not entitled to a kind of organization different from the rest of economic society; that health care must be made available to all the people. In the newspapers, in magazines, and over the radio, we are constantly being reminded of demands for a new organization in the medical distributive system. We have, I fear, been reactionary; we have conjured up bogey-men and leaned upon tradition; we have not produced a dynamic forward-looking philosophy of reorganization.

## SUPERNUMERARY TEETH: THE CAUSE OF THE DELAYED ERUPTION OF PERMANENT TEETH

GEORGE F. SEEMAN, D.D.S.

Nashville, Tennessee



Case 1

CASE 1—A boy, aged 9 years, was physically normal but permanent central incisors failed to erupt. Roentgenograms revealed three supernumerary teeth. One was re-

versed with the crown pointing toward the nasal fossa.

CASE 2—A boy, aged 12 years, was physically normal, but one central incisor

failed to erupt. Roentgenograms revealed a supernumerary tooth, which when removed, permitted the permanent tooth to erupt.

438 Doctors Building.



Case 2

## LETTERS TO THE EDITOR

### DENTAL HISTORY

As a subscriber of your splendid magazine, may I take the liberty of straightening out a few points in the article, *AN OUTLINE OF DENTAL HISTORY* by Doctor Morpurgo, in the December issue of *THE DIGEST*. Dental history as a subject has been woefully neglected by the dental schools and by the profession itself, and for this reason many writers have gone astray because of misinformation or lack of authoritative references; however, if we are to have articles on dental history, we must by all means have them accurate.

In the first place, Johannes Arculanus was not a dentist but a professor of surgery at Bologna and Padua; while it is true that he is credited with mentioning gold fillings for the first time, it is by no means admissible<sup>1</sup> that he was the first to use gold as a restorative material.

As for the discovery of the maxillary sinus by Highmore, it was spoken of by Vesalius, Eustachius, and Fallopius; however, Highmore also did describe it and made known the possibility of a communication between it and the mouth.<sup>2</sup>

By the name "Puff" in 1776, the writer probably meant Phillip Pfaff, dentist to Frederick the Great.

Duchateau<sup>3</sup> was not a German, but a French chemist who lived at St. Germain en Laye, near Paris, and did not make artificial teeth of ivory, but because of the unpleasantness of the odors arising from his own set of hippopotamus ivory, he became interested in developing porcelain as a denture base.

LeMaire<sup>4</sup> did not introduce dentistry into the United States and Greenwood was not the first dentist to practice in New York, for in 1734 James Mills and James Reading were practicing in New York city.

With all due respects to the great G. V. Black and his momentous work in operative dentistry, we must give credit to Doctor W. H. Morrison for the dental engine. Morrison in 1870-1871 adapted a modification of the horse clipper and sheep shearer for dental use.<sup>5</sup>

Finally, William Hunter's denunciation of septic dentistry occurred at the University of McGill on October 3, 1910.—WALTER H. JACOBS, D.D.S., *New York Society of Dental History and Culture*, New York.

<sup>1</sup> Guerini: History of Dentistry, page 154; Garrison: History of Medicine, Fourth Edition, page 159.

<sup>2</sup> Footnote 1, first reference, page 233.

<sup>3</sup> Footnote 1, first reference, page 344; Prothero: Prosthetic Dentistry, Second Edition, page 1122.

<sup>4</sup> Weinberger, B. W.: The First 100 Years of American Dentistry D. Items Int. 61: 852 (November) 1934; Jean Pierre LeMayeur in America D. Cosmos, 76: 569 (May) 1934.

<sup>5</sup> Darby: E. T. Operative Dentistry: Its Evolution and Development During the Past 60 years, D. Cosmos, 62: 1 (January) 1920.



## PHYSICAL PROPERTIES OF PRACTICAL UTILITY

**D**ENTAL cements are employed in various phases of practice for specific, practical purposes. The ultimate test of any dental cement is the manner with which it meets requirements when used in the oral cavity.

The behavior of a dental cement in any other situation than in the practice of dentistry may be interesting to the physicist, but is not necessarily pertinent to dental science. The composition of the cement and the physical properties thereof are most properly considered in the light of results after clinical use. As example, "particle size" cannot be considered conclusive as a determiner in the selection of cement.

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